members of the group into a continuous chain, one end of which is *U. cylindricus* Say, *U. cylindricus* Say var. *strigillatus* Nobis, *U. tuberculatus* Barnes, *U. conjugans* Nobis, *U. blandianus* Lea, *U. asperrimus* Lea, etc., and at the other extreme *U. nodiferus* Con.

Anteriorily the shell reminds one of tuberculatus, except that it is much more inflated in that region. Posteriorly it resembles *blandianus* Lea = *rumphianus* Lea. It is wider and more inequilateral, however, than that species.

(*To be Continued.*)

PISIDIUM HANDWERKI, N. SP.

BY DR. V. STERKI.

Among a lot of Pisidia from the Lilycash Creek, Joliet, Ill., collected and sent for examination by Mr. J. H. Handwerk, in 1898, there were a few specimens of evidently a new species. Yet it needed confirmation by more materials. But all efforts of Mr. Handwerk to secure more examples were in vain until a few weeks ago, when he sent a lot of several thousand specimens from the same creek, containing *P. compressum*, *fallax*, *cruciatum*, *punctatum*, one of the *abditum* group, and a few dozen of the Pisidium under consideration, which is now confirmed as a n. sp. and named in honor of its discoverer.

Mussel small, rather rounded in outline, rather high, moderately inflated; beaks moderately large, somewhat papilliform; superior margin strongly, inferior moderately curved; posterior rounded or slightly truncated, anterior end rounded or with a slight indication of an angle; surface with dense, almost regular and sharp striae, and with a silky gloss, tops of beaks smooth and shining, slightly flattened; color of epiconch pale to yellowish horn; shell rather strong, nacre colorless or whitish, hinge stout, strongly curved, plate moderately broad, lateral teeth stout, rather high, short; cardinal teeth small, fine; the right one angular, with the posterior part somewhat thicker, inserted in a longitudinal groove on the hinge plate, formed by a sharp, tooth-like prominence along the lower edge of the plate; posterior cardinal tooth of the left valve rather long, longitudinal, nearly straight, its ends sloping; anterior oblique, quite small, or almost obsolete; ligament rather small.

Long. 2.4, alt. 2.2, diam. 1.7 mill.

Hab.: Lilycash creek, Joliet, Ill. Probably it has been overlooked in materials from other places, owing to its resemblance to immature specimens of some forms of *P. compressum* Pr. When once known it will always be recognized. It also resembles some forms of *P. pauperculum* Sterki in size and shape, but its comparatively coarse striation will distinguish it at once. *Pis. handwerki* is not a showy Pisidium, with striking features, but nevertheless a good species.

New Philadelphia, O., Nov., 1899.

ORIGIN OF THE MUTATIONS OF OSTREA.[1]

The oysters are a proverbially difficult group, owing partly to their adherent situs and partly to the fact that they have not hitherto been studied with regard to the direct influence of the environment on individual specimens. That this is very great I have convinced myself from a prolonged study of a multitude of specimens of *O. virginica* of which the provenance was known, and of many hundred specimens of our tertiary species, which usually show from the character of the scar of attachment something of the circumstances in which they grew. The conclusions to which I have been led by this study may be regarded as in part provisional, but in the main highly probable, and as furnishing a first contribution to the sort of study which is essential if we would understand the processes of nature through which these animals acquire their most conspicuous external characters. They may be regarded as especially applicable to the *Crassostrea* group.

Leaving out of account the nepionic characters, the characteristics of the adult shell may be summarized and derived as follows: The most permanent characters of the shell, and the best, if not infallible guide to specific recognition among the puzzling mutations a large series presents, are the form of the hinge-margin, the minute sculp-

[1] This interesting extract by Dr. Wm. H. Dall is taken from his review of the Tertiary *Ostreidæ* in the Transactions of the Wagner Free Institute of Science, Vol. III, Part IV, p. 675, 1898. As the original paper deals chiefly with tertiary forms, and is probably not accessible to many interested in recent oysters, we reprint it here.